Abstract Submitted
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Forced Snaking BENJAMIN PONEDEL, EDGAR KNOBLOCH, Univ of California - Berkeley — We study spatial localization in the real subcritical Ginzburg-Landau equation $u_t = m_0 u + m_1 \cos\left(\frac{2\pi}{\ell}x\right) u + u_{xx} + d|u|^2 u - |u|^4 u$ with spatially periodic forcing. When $d > 0$ and $m_1 = 0$ this equation exhibits bistability between the trivial state $u = 0$ and a homogeneous nontrivial state $u = u_0$ with stationary localized structures which accumulate at the Maxwell point $m_0 = -3d^2/16$. When spatial forcing is included its wavelength is imprinted on u_0 creating conditions favorable to front pinning and hence spatial localization. We use numerical continuation to show that under appropriate conditions such forcing generates a sequence of localized states organized within a snakes-and-ladders structure centered on the Maxwell point, and refer to this phenomenon as *forced snaking.* We determine the stability properties of these states and show that longer lengthscale forcing leads to stationary trains consisting of a finite number of strongly localized, weakly interacting pulses exhibiting *foliated snaking.*

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